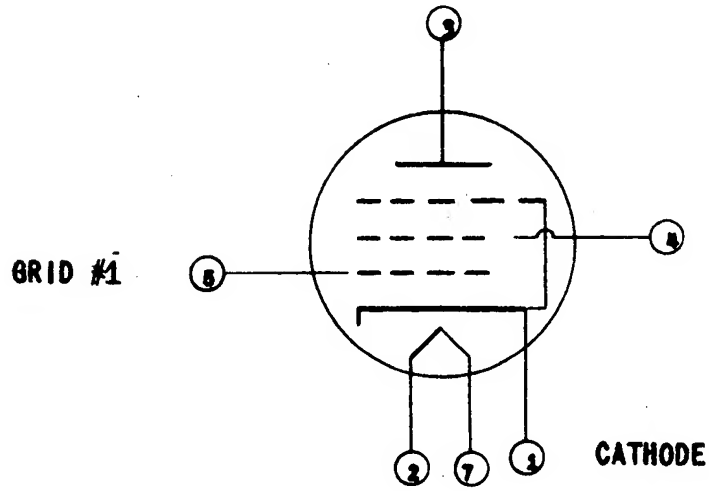
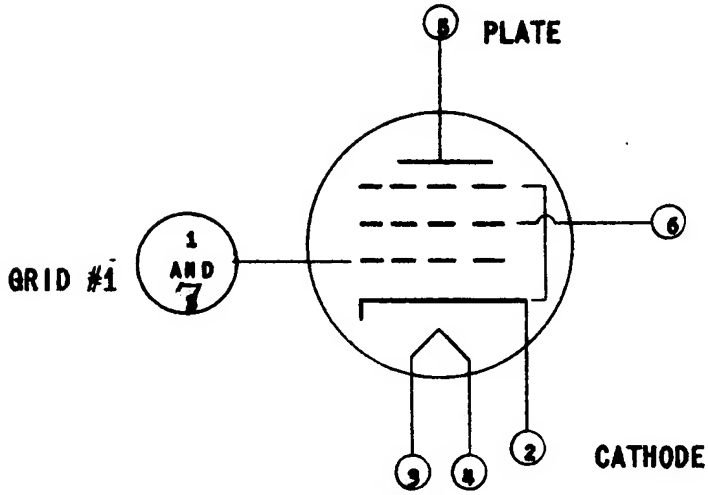
APPENDIX I



OCTAL TUBES WITH CONNECTIONS THAT MAY BE USED WITH SOCKET ADAPTER AD-1.

GRID #2

CATHODE AND GRID #3.



SEVEN PIN MINATURE TUBE CONNECTIONS THAT MAY BE USED WITH SOCKET ADAPTER AD-1.

GRID #2

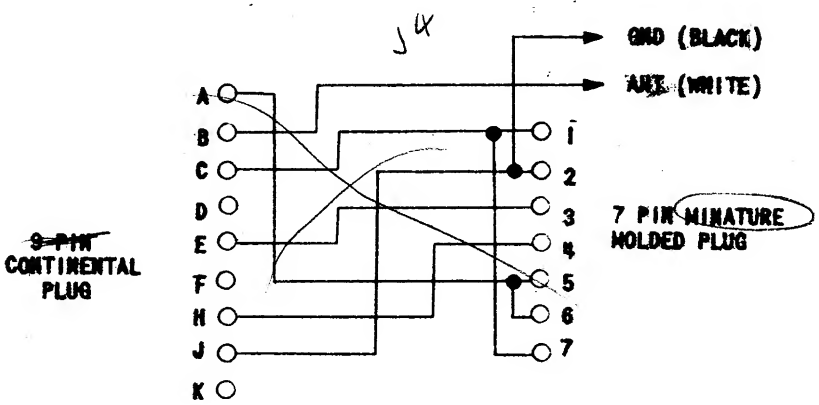
CATHODE AND GRID #3.

[redacted]

11

POWER CABLE

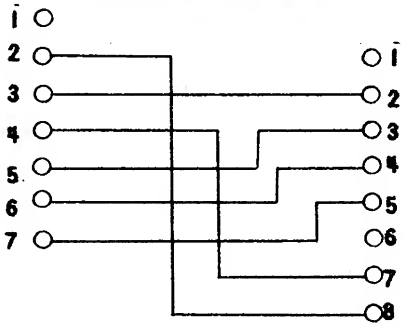
Now for Wempy



~~9-PIN~~ CONTINENTAL PLUG

7 PIN MINATURE MOLDED PLUG

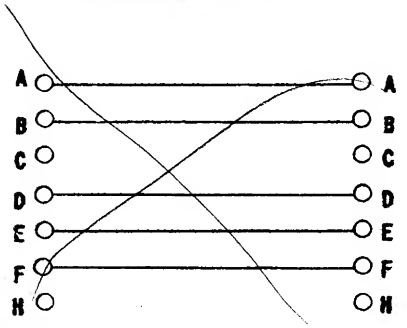
SOCKET ADAPTER AD-1



8 PIN OCTAL PLUG

7 PIN MINATURE SOCKET

MODULATOR CABLE



7 PIN CONTINENTAL PLUG

7 PIN CONTINENTAL PLUG

This document is part of an integrated file. If separated from [illegible] must be subjected to [illegible] review.

DRAWN BY:	DATE.
CKD. BY:	DWG. NO..
APPD. BY:	

I Description

The TA-3 is a transmitter when used in conjunction with a receiver. A beat frequency oscillator (BFO) incorporated in the TA-3 enables any receiver having a short-wave band to receive CW signals.

Since the TA-3 uses power from the receiver and the receiver power output tube for the transmitter tube, the power output will depend on the receiver being used.

Modulator?

The complete TA-3 consists of ___ units.

2. Characteristics

2.1 Physical

2.11 Transmitter and BFO

Weight:

Size:

2.12 Modulator ??

2.13 Accessory Bag

2.2 Electrical

2.2.1. Frequency range

The frequency range is from 4 to 22mc in two bands, 4-__,__-22

2.22. Crystals

Crystals operating on the fundamental are to be used below 8 mc. Doubling is to be used from 8mc to 16mc. From 16mc to 22mc tripling is necessary.

2.23 Power Output

The power output depends on the supply voltage, antenna impedance and output frequency. With a supply voltage of 240 volts ("key down") and a 6V6 output tube, the CW power output is about 4 watts.

2.2.4. Antenna Impedance

Each antenna loading coil contains 8 taps to adjust to antenna impedances from 70 to 1200 ohms

2.2.5. Beat Frequency Oscillator

The BFO has a mean frequency of 455 kc and can be varied ±5kc by adjusting the BFO control.

2.26. Power Requirements.

All power required is obtained from the receiver.

3. Theory of Operation.

3.1 General

The audio output tube of the receiver is removed and used as the transmitting tube in the TA-3. The power required for the transmitter is supplied by the receiver through the cable that connects the transmitter to the receiver. The audio signal at the receiver is fed through the power cable to the Telephone Jack on the transmitter. An antenna lead is fed through the power cable from the transmitter, through the Send-Receive-BFO Switch, to the white lead projecting from the power cable plug. The black lead projecting from the power plug cable is the ground lead which is common to the TA-3 chassis and the external ground connection.

3.2 Transmitting

The transmitter is a single tube, crystal controlled, grid-plate oscillator. The tuning indicator is a neon bulb connected to the plate of the transmitter tube through a 5 μμf capacitor. When the transmitter is being tuned, the antenna is disconnected by placing the antenna tap switch in the tune position.

The antenna tap switch, which is located on top of the plug-in tank coil, is used to provide an impedance match between the antenna and the plate tank.

The antenna current is indicated by a #331 pilot lamp. This lamp is a low voltage, low current type (1.3 V, 60ma) and thus has little effect on the loading of the transmitter.

Three positions of the antenna current switch are available for various values of antenna current.

3.4 Receiving

The Send-Receive-BFO switch performs three functions: In position 1, the antenna is connected to the transmitter. In position 2, the antenna is connected to the receiver with the BFO ON. In position 3, the antenna is connected to the receiver with the BFO OFF. [When the operator listens to a voice station, the S-R-BFO switch should be in the R position so that a beat note will not be heard.]?

The BFO coil is slug-tuned and may be adjusted for IF frequencies from about 415 to 555 kcs.

4. Operation

See PP. 7-8 of TA-1A 110 Yos

4.2 Transmitting

5 Maintenance

5.1 Transmitter

Trouble shooting of the transmitter may be done by making voltage and resistance measurements. Total Cathode current of the transmitting tube can be by Connecting a 0-100ma DC meter into the external key jack. With plate voltage equal to 250v the value of current measured should be about 40 ma.

5.2 Beat Frequency Oscillator.

See page 10 Sec 5.2